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June 2, 1998

Assistant Commissioner for Patents
Washington, D.C. 20231 Attorney Dkt. No. ASAMU 3520.01
ATTENTION: Box PATENT APPLICATION

Re: New Patent Application
Inventor(s): Kunio KOTSUKI, Tokio IMAHAYASHI, and Masahiro EZATO

Sir:

Please find attached hereto an application for patent which includes:

Specification, Claims, Abstract of the Disclosure, Declaration, Power of Attorney and Information Disclosure Statement with Form PTO-1449.

Drawings: 6 Sheets Formal Drawings (Figs. 1 - 6)

Fee (see formula below) - Check Enclosed:

Basic Fee $790.....	$ 790.00
Additional Fees:	
Total number of claims in excess of 20 0 times $11/22	$ -0-
Number of independent claims 8	
in excess of 3: 5 times $41/82.....	$ 410.00
Multiple Dependent Claim $135/270.....	$ -0-
An assignment and cover sheet is likewise enclosed;	
Recording Fee.....	$ 40.00
TOTAL FEES FOR THE ABOVE APPLICATION...	$1,240.00

In the event there is attached hereto no check, or a check for an insufficient amount, please charge the fee to our Account No. 19-3700 and notify us accordingly.

Respectfully submitted,

Robt J Frank

Robert J. Frank
(Registration No. 19,112)

RJF:jh

A COMMUNICATING APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates to a communicating apparatus for a telephone speech conducted via an external telephone connected to a personal computer.

It is possible today to achieve a telephone call from a personal computer (PC) in which an application software of telephone functions is installed. Moreover, image data can also be directly transmitted from a personal computer in which an application software of facsimile communications is loaded.

Most application programs of this type include a telephone directory function. Namely, in a case a telephone and facsimile numbers of a communication partner are beforehand registered to the directory of the application software, it is possible to automatically transmit the telephone or facsimile number to the partner only by indicating the partner in the directory list. Additionally, also when an external telephone is linked with the computer, the user desires to conduct a telephone call via the telephone book in many cases. After the directory is opened and the telephone call is established through a dialing operation, the call is carried out via the external telephone. Therefore, other operations can be accomplished by the computer.

Moreover, when a facsimile transmission is achieved to send a manuscript, it will be more efficient depending on cases that the telephone directory is opened only to dial the call number of the partner and the contents of the manuscript are actually read and transmitted by an external facsimile device.

However, in the conventional method above, when conducting a call, the user is required to make a search for the telephone directory application in the computer and to initiate the application. When it is desired to immediately make a telephone call, the operation is troublesome and annoyance for the user. In some computer applications, when using the external telephone, the user is required to set the external telephone to an off-hook state so as to set the computer to an on-hook state. This leads to a drawback that the operation is bothersome and the telephone set can be used only by those who are versed in the operation technique.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention, which has been devised to remove the problem above, to provide a communication apparatus for use with external communication terminals such as external telephones and facsimile facilities in which the user can immediately conduct a visual check of the telephone directory without conducting the troublesome initiating operation.

To achieve the object above in accordance with the present invention, there is provided a communicating apparatus comprising interface unit for establishing connection to a personal computer, an off-hook detecting unit for detecting an event that a telephone line is set to an off-hook state at initiation of communication, and control unit for transmitting information of the detection from the off-hook detecting unit to a directory application initiation request unit integrally included in the personal computer. Thanks to the configuration, the troublesome operation and knowledge conventionally required for the telephone call from an external telephone using a personal computer become unnecessary. Namely, with the provision of this communicating apparatus, the telephone call can be easily achieved without any particular knowledge.

In accordance with another aspect of the present invention, there is provided a communicating apparatus comprising an off-hook detecting unit for detecting an event that the telephone line is set to an off-hook state at initiation of communication and outputting therefrom information of the detection, a bell signal detecting unit for detecting a bell signal received from the telephone line and outputting therefrom information of the detection, caller information detecting unit for detecting a caller telephone number notified to a call receiver by a caller telephone number notification service, and interface unit for controlling

a serial communication with a personal computer. The central control unit transmits information of the detection from the off-hook detecting unit and the bell signal detecting unit to a directory application initiation request unit incorporated in the personal computer and information of a partner detected by the caller information detecting unit to the personal computer.

BRIEF DESCRIPTION OF THE DRAWINGS

The objects and features of the present invention will be come more apparent from the consideration of the following detailed description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a diagram schematically showing a configuration of an embodiment of the communicating apparatus in accordance with the present invention;

Fig. 2 is a perspective view showing an appearance of the communicating apparatus connected to a personal computer;

Fig. 3 is a diagram showing constitution of a line control unit of the communicating apparatus;

Fig. 4 is a flowchart showing a control procedure of a call issuing or originating operation in the embodiment;

Fig. 5 is a flowchart showing a control procedure of a call terminating operation in the embodiment; and

Fig. 6 is a flowchart showing a control procedure of a call terminating operation in another embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, description will be given of an embodiment in accordance with the present invention.

Fig. 1 shows in a block diagram the configuration of an embodiment of the communicating apparatus including an off-hook information detector and a call originator information detector in accordance with the present invention, Fig. 2 shows an appearance of the apparatus operated in connection with a personal computer, Fig. 3 shows in a circuit diagram the structure of a line controller of the communicating apparatus, and Figs. 4 and 5 are flowcharts showing operation of the apparatus.

The constitution of Fig. 1 includes a communication network 1 through which the communicating apparatus of the embodiment communicates with other terminals and a line controller 2 to conduct functions such as a function to establish interface for the network 1. The controller 2 includes an off-hook detecting unit 2a to detect at initiation of a communication that the telephone line is set to the off-hook state and a bell signal detecting unit 2b to detect a bell signal received via the network 1. The controller 2 further achieves

various functions such as an impedance matching function with respect to the network 1, a signal amplifying function, and a two-wire to four-wire converting or transforming function.

Moreover, the embodiment includes a personal computer (PC) interface 4 for the connection with a personal computer and a modem 5 to connect thereto an external data communicating device 30, or an external facsimile apparatus, or the like for data communication.

The system further includes a caller identifier (ID) detecting unit 6 to detect a caller's telephone number notified to the receiver through a originating telephone number notification service. Specifically, the unit 6 extracts telephone number information from signals demodulated by the modem 5. There is also included a central control unit 7 to control the off-hook detector 2a, the modem 5, the caller ID detector 6, and the PC interface 4 linked with a personal computer 8. The controller 7 supervises these units in accordance with a procedure shown in the flowcharts of Figs. 4 and 5 to resultantly transmit off-hook information and caller information to the computer 8. The controller 7 includes a storage 7a.

The line controller 2 will be described by referring to Fig. 3. In the diagram, 16a, 16b, and 17 respectively indicate a chip wire, a ring wire, and a rectifier. A reference numeral 18 stands for a photo-interrupter disposed in the off-hook detector 2a. When

an external telephone or the like is set to an off-hook state to lower a voltage between the chip wire 16a and the ring wire 16b of the telephone line, off-hook information is outputted to output terminal hook of the photo-interrupter 18 to be sent to the central controller 7. A numeral 19 denotes a photo-interrupter arranged in the bell signal detector 2b. When a bell signal is received from the network 1, a pulse wave is outputted to output terminal bell to be delivered to the controller 7. A numeral 20 is a transformer to interrupt a direct current and to conduct a two-wire/four-wire conversion, a numeral 21 indicates a receiver amplifier installed in a receiver-side signal path, and a numeral 22 designates a sender amplifier disposed in a sender-side signal path.

Numerals 24 and 25 respectively indicate a microphone and a loudspeaker for the user to conduct a telephone speech without using hands. Numerals 26 and 27 respectively denote an amplifier to amplify a signal outputted from the microphone 24 and an amplifier which causes the speaker 25 to sound. Numerals 28 and 29 respectively indicate a jack to connect a handset to the system and a switching unit which establishes and changes connections of signal paths between the receiving and transmitting sides.

As can be seen from Fig. 2, the communicating apparatus 3 of the embodiment is coupled with the personal computer 8 in which telephone directory application software is loaded. The PC interface of the

apparatus 3 is linked with a serial interface of the computer and hence the apparatus 3 can communicate information with the computer 3 in a serial communication. Reference numerals 15 and 8a respectively designate a liquid-crystal display arranged in the apparatus 3 and a display integrally disposed in the computer 8.

In Fig. 1, a numeral 9 indicates an application (APL) initiation request unit 9 operating in the computer 8. The unit 9 continuously monitors an event from the off-hook detector 2a of the apparatus 3 in accordance with the present invention.

The computer 8 includes a hard disk device 10. Information stored in the device 10 can be displayed on the display 8a. Numerals 11 to 13 respectively indicates a display example of a directory window of the directory window application software initiated by the request unit 9, a display example of caller information by the software at call termination, and a display example in which the user inputs a memo during a speech.

A numeral 14 designates an external telephone set for the user to conduct a speech by phone. The telephone set 14 is connected to the chip and ring wires 16a and 16b in a parallel fashion. When the telephone 14 is set to an off-hook state, the voltage between the chip and ring wires 16a and 16b is reduced.

Referring next to the flowcharts of Figs. 4 and 5, description will be given of operation of the

communicating apparatus constructed as above in accordance with the present invention.

First, referring to Fig. 5, description will be given of an operation to originate call. The application initiation request unit 9 appropriately monitors the serial interface of the computer 8 to receive an off-hook event from the off-hook detector 2a (step S1).

At the same time, the detector 2a continuously makes a check to determine whether or not the external telephone 14 is set to an off-hook state (step S2). When the telephone 14 is set to an off-hook state, there flows a current between two wires 16a and 16b of the telephone line and hence the voltage therebetween is decreased. The detector 2a detects the voltage drop (step S2) to transmit off-hook information via the serial interface to the computer 8 (step S3).

Having recognized the off-hook state of the telephone 14 in accordance with the off-hook information, the application initiation request unit 9 of the computer 8 initiates the telephone directory application software (step S4).

With provision of the unit 9 and the detector 2a above, when the user carries out a speech through an external telephone by user of a personal computer, the troublesome operation to detect the telephone application software and/or the telephone directory application software. It is neither required for the user to be versed in the software telephone connected to the

personal computer. Additionally, after the directory is opened and the partner's call number is dialed, the speech is accomplished by the external telephone. Consequently, the personal computer is not dedicatedly used for the speech, namely, it is possible to achieve other operation by the computer.

Referring now to Fig. 5, description will be given of operation of the apparatus at call termination. When a bell signal is received from the network 1, the external telephone 14 rings (step S1). At the same time, the caller ID detector 6 detects under control of the line controller 2 information of a partner (caller information) having issued the telephone call and then notifies the information to the central controller 7 (step S2). The controller 7 once stores the caller information in the storage 7a.

The number of bell signals from the network 1 is counted (step S3) to determine whether or not the count value is equal to a predetermined value (step S4). If this is the case, the line controller 2 automatically closes the telephone line (step S5) and then a current flows between two wires of the telephone line to lower the voltage therebetween.

Having detected the voltage drop, the off-hook detector 2a sends off-hook information via the serial interface to the computer 8 (step S6).

Moreover, the information including the partner's telephone number and the like which has been

notified from the network 1 and which has been stored in the storage 7a as described above is also sent via the PC interface 4 to the computer 8 (step S7).

The application initiation request unit 9 continuously monitors the serial interface of the computer 8 to receive an off-hook event from the off-hook detector 2a. On receiving the event (step S8), the unit 9 of the computer 8 invokes the directory application software in accordance with the off-hook information (step S9).

Having received the caller information via the PC interface 4 of the apparatus (step S10), the software of the computer 8 accesses a database stored in the hard disk device 10 to read therefrom detailed information related to the received caller information (step S11) and then displays the detailed information on the display 8a as shown in the display example 12 of Fig. 1 (step S12). It is therefore possible to obtain partner's information in the past.

As above, in accordance with the communicating apparatus of the embodiment, the application software of the personal computer can be initiated in association with the closing of the telephone line. Consequently, detailed information of the part can be read from the storage of the computer 8 to be displayed on the screen, namely, it is possible to confirm the partner's detailed information before the telephone speech is started.

Subsequently, description will be given of a

function to input memos in the system. Detailed information of a partner as a call originator can be inputted from a memo input screen to the system during or after a speech. When the external telephone 14 is set to the off-hook state or the memory input screen is activated in the directory application software, the processing of Fig. 5 is executed and then the memo input screen is displayed as the display example 13 of Fig. 1. In this situation, the user can input a record of the speech with the call originating partner to the system (step S13).

For example, when the user inputs the contents of speech to the system and terminates the computer application software, a record of the contents thus inputted is stored in the hard disk device 10 corresponding to caller information of the partner (step S14). Thanks to the provision, when a call is received from the same partner, the contents previously recorded can be displayed on the screen.

Referring next to Fig. 6, description will be given of an alternative embodiment of the communicating apparatus in accordance with the present invention. This embodiment differs in the operation procedure from the preceding embodiment. In Fig. 6, when a bell signal in received via the network 1, the external telephone 14 rings. On this occasion, the bell signal detector 2b detects the reception of the bell signal to send information of the signal detection to the central

controller 7. Resultantly, bell signal detection information is passed from the controller 7 via the serial interface to the computer 8 (step S1). Simultaneously, under supervision of the line controller 2, the caller ID detector 6 senses information of the originating partner, i.e., caller information to notify the information to the controller 7. The controller 7 immediately transmits the caller information via the serial interface to the computer 8 (step S2).

In the computer 8, the application initiation request unit 9 continuously monitors the serial interface thereof to detect a bell signal event sent thereto. When such an event is received (step S5), the unit 9 immediately activates the directory application software (step S6). On receiving thereafter caller information from the communicating apparatus (step S7), the computer 8 accesses by the software the database stored in the hard disk device 10 to obtain a caller name corresponding to the notified caller information and then displays the name on the screen (step S8).

Recognizing the ringing of the telephone 14, the user raises the handset of the telephone 14 to set the off-hook state. This causes a current to flow between two wires of the telephone line to lower the voltage therebetween. The off-hook detector 2a then detects the voltage drop (step S3) and sends off-hook information via the serial interface to the computer 8 (step S4).

Having received the off-hook information, the computer 8 reads by the software the database in the disk device 10 to attain detailed information associated with the caller information (step S9) and then presents the detailed information on the display 8a as shown in the display example 12 of Fig. 1 (step 10).

In accordance with the communication apparatus of this embodiment described above, immediately after the reception of the bell signal the directory application software is initiated in the computer 8 before the user raises the handset of the telephone 14. Consequently, the user can visually check the caller information as early as possible. In addition, when the caller information transmitted together with the bell signal is detected, only the caller name corresponding to the caller information is read by the directory application software to be presented on the display. This advantageously reduces the period of time to access the objective item. The user can recognize the caller name during quite a short period of time after the telephone bell starts ringing to thereby recognize whether or not the handset is to be raised.

In the example above, the telephone speech is accomplished by an external telephone. However, the communicating apparatus of the present invention may be a facility including a function of voice speech, i.e., a voice amplifying function, a handset, and the like. In operation of any communicating apparatus integrally

including the voice speech function, the directory application software can be initiated in the personal computer only by raising the handset thereof. Only by specifying a call terminating partner in a directory list, a telephone number of the partner can be automatically transmitted therefrom, which advantageously simplify the telephone operation.

Furthermore, the communicating apparatus in accordance with the present invention may include, for example, an image reading device for facsimile communication. After the contents of a manuscript are read by the image reader, the user can initiate the directory application software in the computer by a simple operation to close the line, i.e., by depressing an off-hook or monitor button. The user then need only specify a call terminating partner in a directory list to automatically send a telephone number of the partner therefrom.

As above, in accordance with the present invention, there is provided a communicating apparatus in which when the user to easily carry out a telephone speech with an external telephone of a personal computer, the troublesome operation and knowledge required to make a search for a telephone or telephone directory application software of the computer become unnecessary, which advantageously facilitates the telephone operation.

While the present invention has been described with reference to the particular illustrative

embodiments, it is not to be restricted by those embodiments but only by the appended claims. It is to be appreciated that those skilled in the art can change or modify the embodiments without departing from the scope and spirit of the present invention.

CLAIMS:

1. A communicating apparatus, comprising:

interface means for establishing connection to a personal computer;

off-hook detecting means for detecting an event that a telephone line is set to an off-hook state at initiation of communication; and

control means for transmitting information of the detection from the off-hook detecting means to directory application initiation request means integrally included in the personal computer.

2. A communicating apparatus comprising:

interface means for establishing connection to a personal computer;

a handset having a function for voice speech, or a voice amplifying function;

means for closing the telephone line in accordance with a state of the handset;

off-hook detecting means for detecting an event that the telephone line is closed at initiation of communication; and

control means for transmitting information of the detection from the off-hook detecting means to a directory application initiation request means integrally included in the personal computer.

3. A communicating apparatus, comprising:

interface means for establishing connection to a personal computer;

image reading means for facsimile communication;

operation means for a user to close a line before initiating the facsimile communication;

off-hook detecting means for detecting an event that the telephone line is closed at initiation of communication; and

control means for transmitting information of the detection from the off-hook detecting means to directory application initiation request means integrally included in the personal computer.

4. A communicating apparatus, comprising:

line control means connected to a telephone line for conducting a line control operation including a dialing operation;

central control means;

off-hook detecting means for detecting an event that the telephone line is set to an off-hook state at initiation of communication;

caller information detecting means for detecting a caller telephone number notified to a call receiver by a caller telephone number notification service; and

interface means for controlling a serial communication with a personal computer,

wherein the central control means transmits information of the detection from the off-hook detecting means to directory application initiation request means

incorporated in the personal computer and information of a partner detected by the caller information detecting means to the personal computer.

5. A communicating apparatus, comprising:

line control means connected to a telephone line for conducting a line control operation including a dialing operation;

central control means;

off-hook detecting means for detecting an event that the telephone line is set to an off-hook state at initiation of communication and outputting therefrom information of the detection;

bell signal detecting means for detecting a bell signal received from the telephone line and outputting therefrom information of the detection;

caller information detecting means for detecting a caller telephone number notified to a call receiver by a caller telephone number notification service; and

interface means for controlling a serial communication with a personal computer,

wherein the central control means transmits information of the detection from the off-hook detecting means and the bell signal detecting means to directory application initiation request means incorporated in the personal computer and information of a partner detected by the caller information detecting means to the personal computer.

6. A communicating apparatus comprising:

line control means connected to a telephone line for conducting a line control operation including a dialing operation;

off-hook detecting means for detecting an event that the telephone line is set to an off-hook state at initiation of communication and outputting therefrom information of the detection;

caller information detecting means for detecting a caller telephone number notified to a call receiver by a caller telephone number notification service;

a personal computer on which directory application software is mounted;

application software initiation request means for initiating the directory application software in the personal computer; and

control means for transmitting information of the detection from the off-hook detecting means to the application software initiation request means of the personal computer, initiating thereby the software, and displaying on a screen, in accordance with information of a partner detected by the caller information detecting means, detailed information of the partner stored in a storage of the personal computer.

7. A communicating apparatus comprising:

line control means connected to a telephone line for conducting a line control operation such as a

dialing operation;

bell signal detecting means for detecting a bell signal received from the telephone line and outputting therefrom information of the detection;

caller information detecting means for detecting a caller telephone number notified to a call receiver by a caller telephone number notification service;

a personal computer on which directory application software is mounted;

application software initiation request means for initiating the directory application software in the personal computer; and

control means for transmitting information of the detection from the bell signal detecting means to the application software initiation request means of the personal computer, initiating thereby the software, and displaying on a screen, in accordance with information of a partner detected by the caller information detecting means, detailed information of the partner stored in a storage of the personal computer.

8. A communicating apparatus comprising:

a modem connected to an external data communication device and the like for conducting data communication;

a transformer for interrupting a direct current and for achieving a two-wire to four-wire transforming operation;

a receiver-side amplifier installed in a signal path on a receiver side;

a caller-side amplifier installed in a signal path on a caller side;

off-hook detecting means including a photo-interrupter for producing detection information in accordance with a voltage between a chip wire and a ring wire;

bell signal detecting means including a photo-interrupter for producing detection information at an output terminal end thereof when a bell signal is received via a telephone network;

a microphone and a speaker arranged for a speech without using hands;

an amplifier for amplifying a signal outputted from the microphone;

an amplifier for sounding the speaker;

switching means for establishing and changing connections between the receiver side and the caller side; and

control means including a personal computer interface for establishing connection to a personal computer for transmitting the detection information from the off-hook detecting means and the bell signal detecting means to application software initiation request means of the personal computer, initiating thereby directory application software, and displaying on a screen detailed information of a partner stored in a

storage of the personal computer.

ABSTRACT OF THE DISCLOSURE

In a communicating apparatus, telephone or directory application software can be automatically initiated in a personal computer. An off-hook detecting unit of the apparatus continuously makes a check to determine whether or not an external telephone is set to an off-hook state. If this is the case, the off-hook detecting unit sends off-hook information via a serial interface to the computer. An application initiation request unit of the computer monitors the serial interface. Having recognized an off-hook state of the telephone in accordance with the off-hook information, the request unit automatically initiates the directory application software.

FIG.1

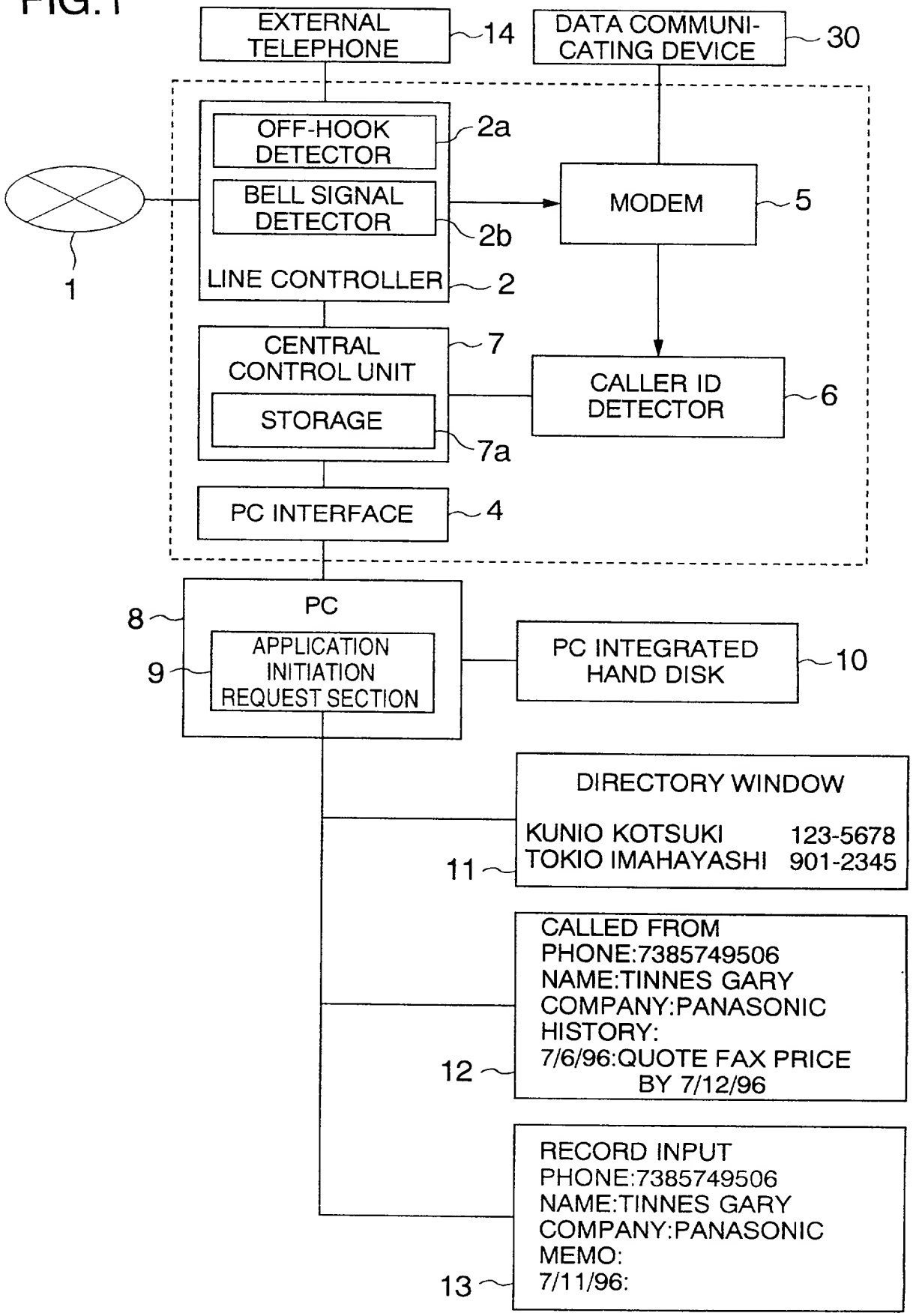

EXTERNAL TELEPHONE
14
DATA COMMUNI-CATING DEVICE
30
OFF-HOOK DETECTOR
2a
BELL SIGNAL DETECTOR
2b
LINE CONTROLLER
2
MODEM
5
1
CENTRAL CONTROL UNIT
7
STORAGE
7a
CALLER ID DETECTOR
6
PC INTERFACE
4
8
PC
9
APPLICATION INITIATION REQUEST SECTION
PC INTEGRATED HAND DISK
10
DIRECTORY WINDOW
KUNIO KOTSUKI 123-5678
TOKIO IMAHAYASHI 901-2345
11
CALLED FROM
PHONE:7385749506
NAME:TINNES GARY
COMPANY:PANASONIC
HISTORY:
7/6/96:QUOTE FAX PRICE
BY 7/12/96
12
RECORD INPUT
PHONE:7385749506
NAME:TINNES GARY
COMPANY:PANASONIC
MEMO:
7/11/96:
13

FIG.2

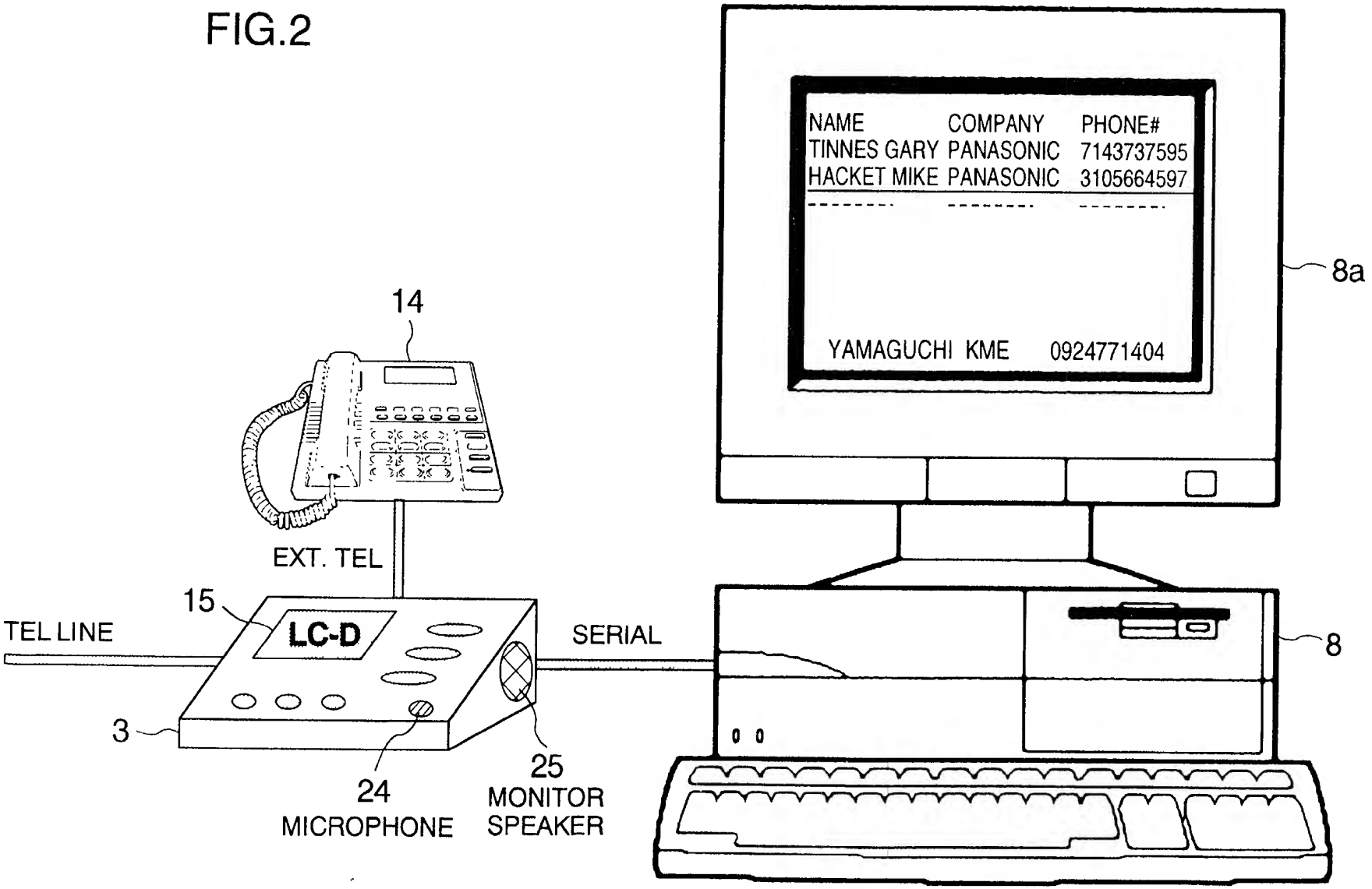
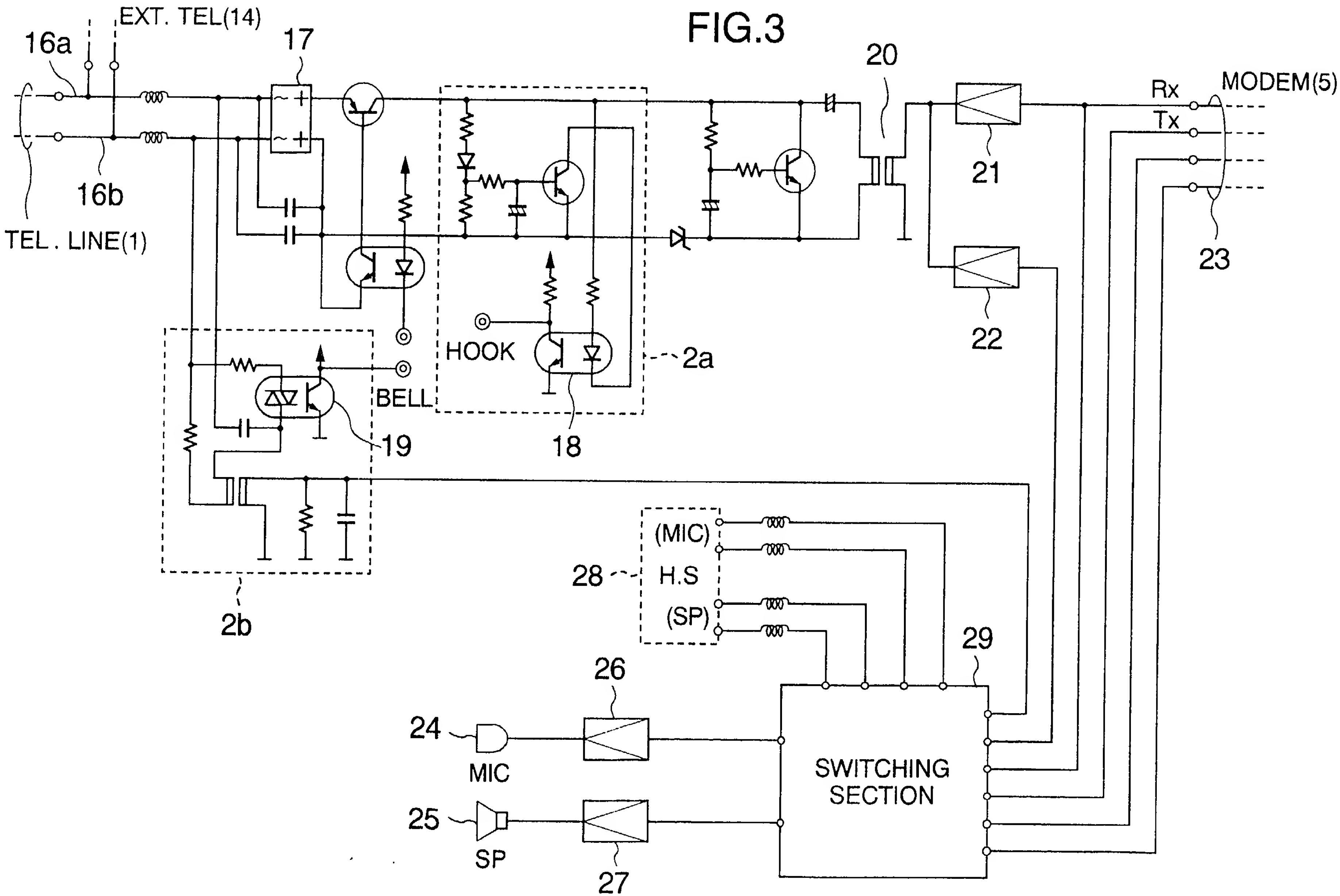

NAME COMPANY PHONE#
TINNES GARY PANASONIC 7143737595
HACKET MIKE PANASONIC 3105664597
YAMAGUCHI KME 0924771404
8a
14
EXT. TEL
15
LC-D
TEL LINE
SERIAL
8
3
24
MICROPHONE
25
MONITOR
SPEAKER

FIG.3



EXT. TEL(14)
16a
17
20
MODEM(5)
Rx
Tx
16b
TEL. LINE(1)
21
23
22
HOOK
2a
BELL
19
18
2b
(MIC)
28
H.S
(SP)
29
26
24
MIC
SWITCHING SECTION
25
SP
27

FIG.4

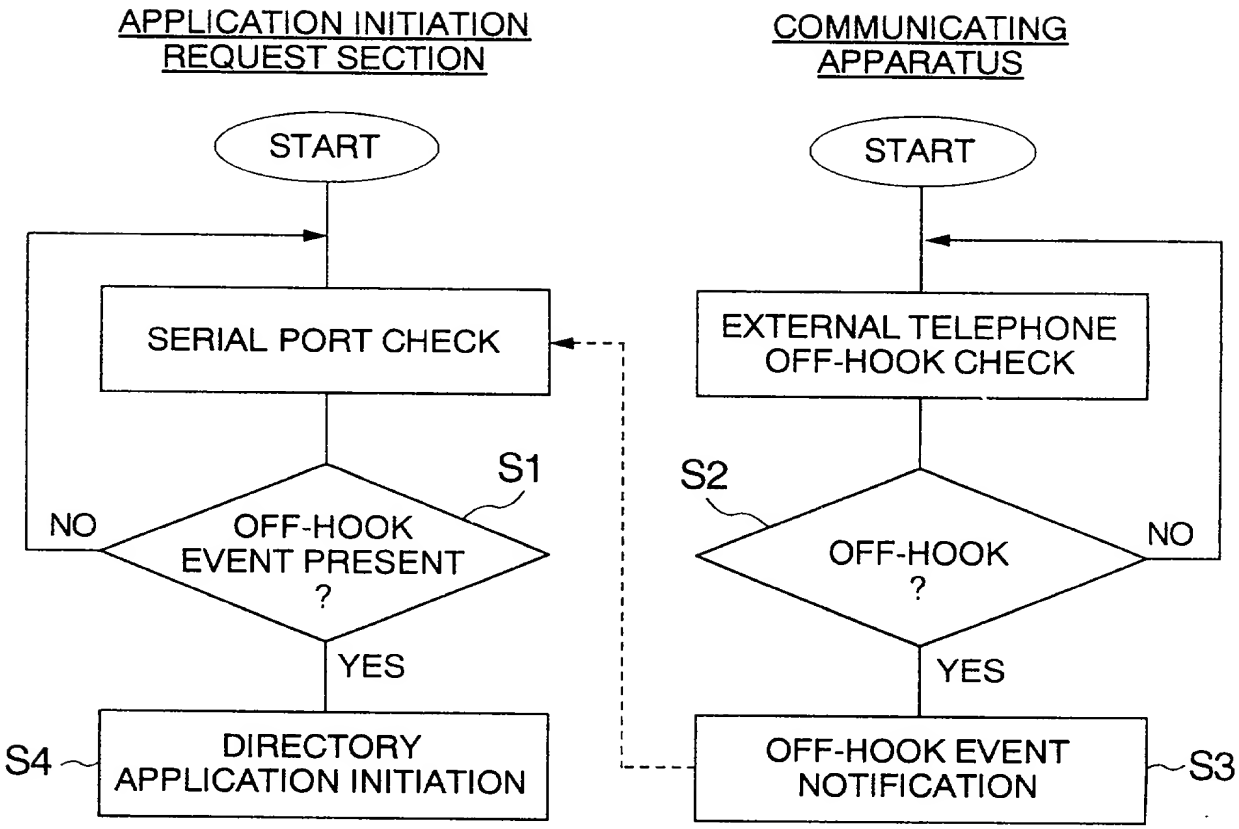

APPLICATION INITIATION REQUEST SECTION
COMMUNICATING APPARATUS
START
START
SERIAL PORT CHECK
EXTERNAL TELEPHONE OFF-HOOK CHECK
S1
S2
NO
OFF-HOOK EVENT PRESENT ?
OFF-HOOK ?
NO
YES
YES
S4
DIRECTORY APPLICATION INITIATION
OFF-HOOK EVENT NOTIFICATION
S3

FIG.5

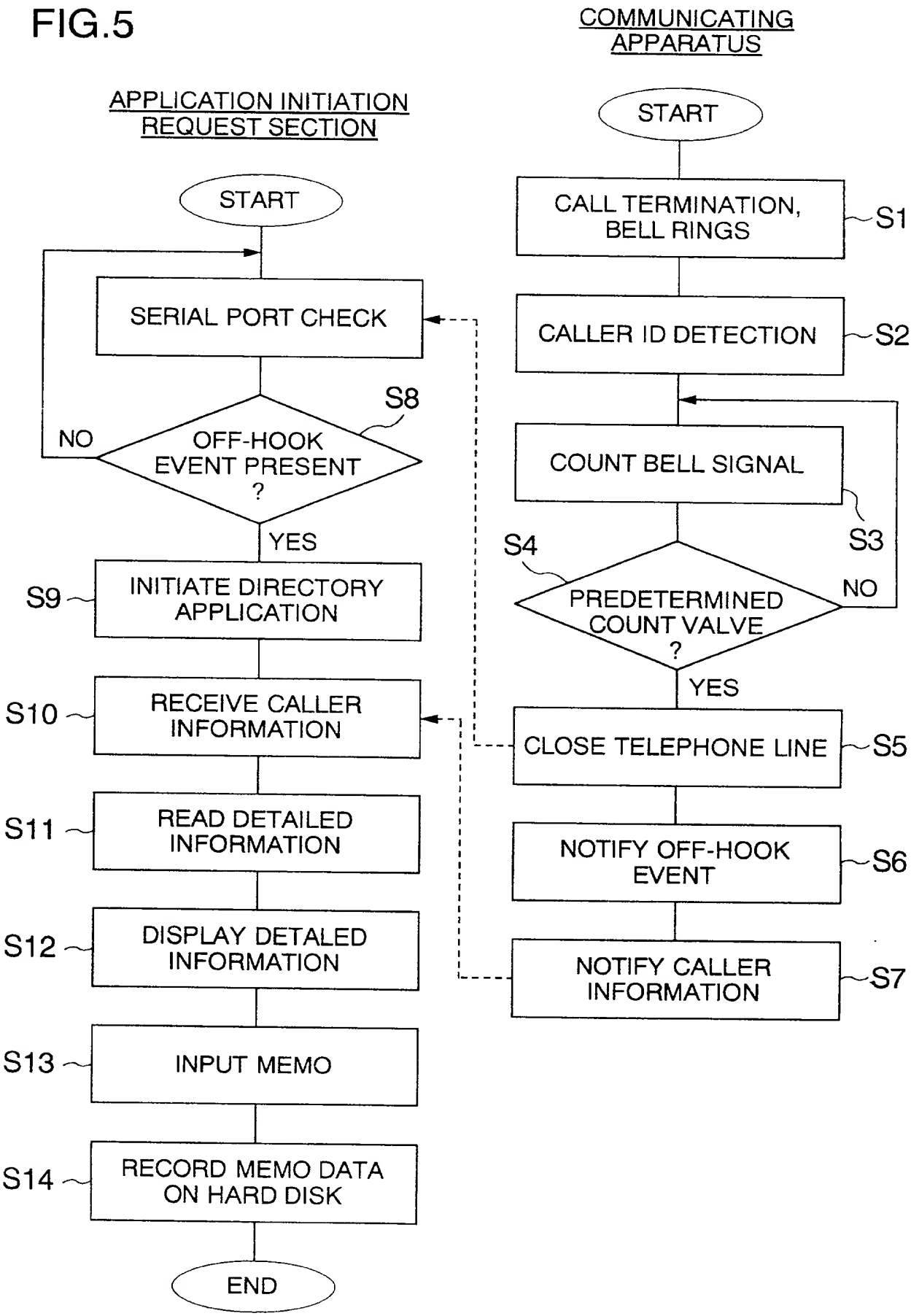
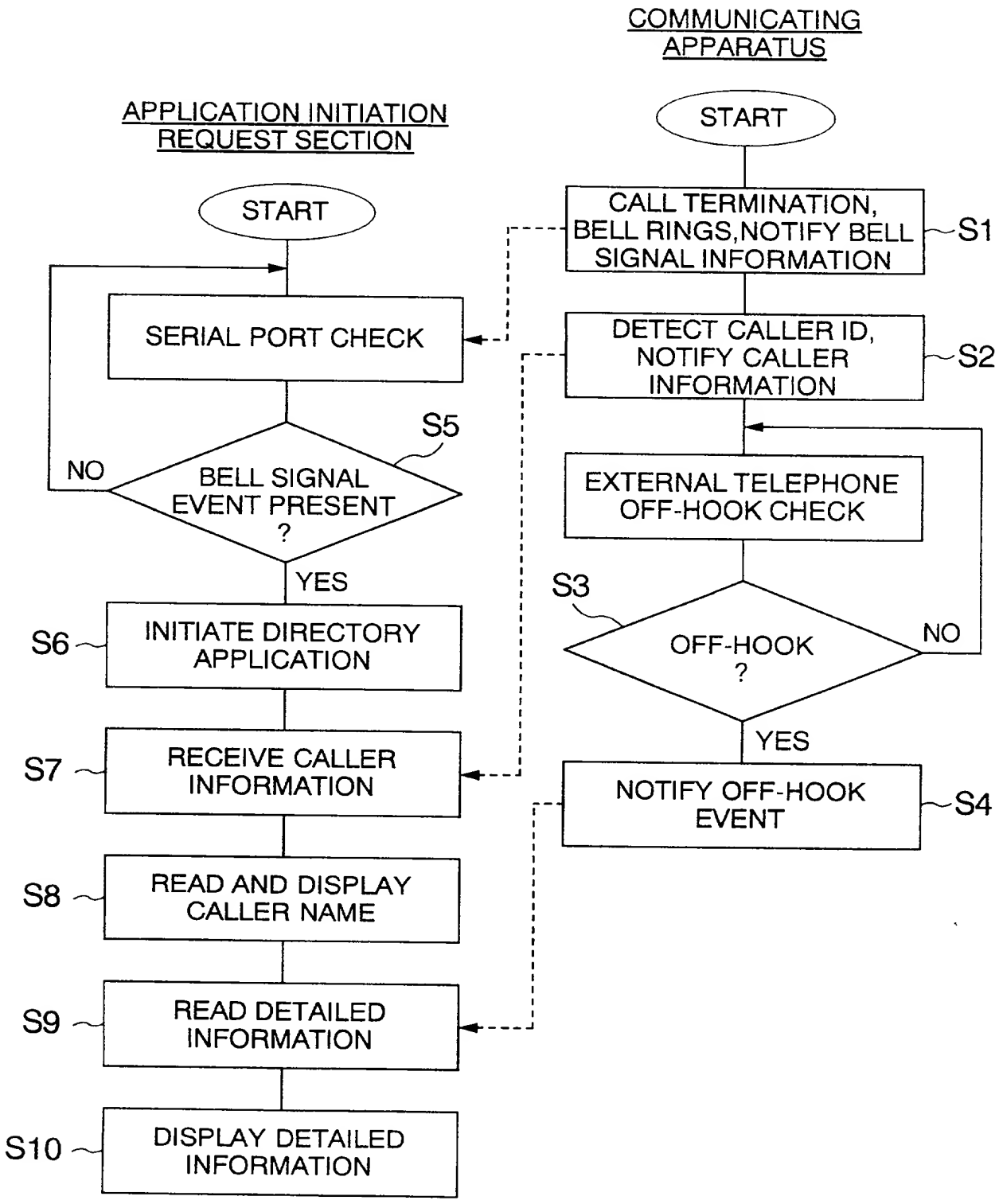

COMMUNICATING APPARATUS
APPLICATION INITIATION REQUEST SECTION
START
CALL TERMINATION, BELL RINGS
S1
CALLER ID DETECTION
S2
COUNT BELL SIGNAL
S3
S4
PREDETERMINED COUNT VALVE ?
NO
YES
CLOSE TELEPHONE LINE
S5
NOTIFY OFF-HOOK EVENT
S6
NOTIFY CALLER INFORMATION
S7
START
SERIAL PORT CHECK
S8
OFF-HOOK EVENT PRESENT ?
NO
YES
S9
INITIATE DIRECTORY APPLICATION
S10
RECEIVE CALLER INFORMATION
S11
READ DETAILED INFORMATION
S12
DISPLAY DETALED INFORMATION
S13
INPUT MEMO
S14
RECORD MEMO DATA ON HARD DISK
END

FIG.6


COMMUNICATING APPARATUS
APPLICATION INITIATION REQUEST SECTION
START
START
CALL TERMINATION, BELL RINGS,NOTIFY BELL SIGNAL INFORMATION
S1
SERIAL PORT CHECK
DETECT CALLER ID, NOTIFY CALLER INFORMATION
S2
S5
NO
BELL SIGNAL EVENT PRESENT ?
EXTERNAL TELEPHONE OFF-HOOK CHECK
YES
S3
S6
INITIATE DIRECTORY APPLICATION
OFF-HOOK ?
NO
YES
S7
RECEIVE CALLER INFORMATION
NOTIFY OFF-HOOK EVENT
S4
S8
READ AND DISPLAY CALLER NAME
S9
READ DETAILED INFORMATION
S10
DISPLAY DETAILED INFORMATION

E4-1-01

COMBINED DECLARATION AND POWER OF ATTORNEY
(宣誓書及び委任状)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

"A COMMUNICATING APPARATUS"

the specification of which: (check one) ☒ is attached hereto.

☐ was filed on _____
as Application Serial No. _____
and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended, by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me which is material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date earlier than that of the application(s) on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
09-147504 (Number)	Japan (Country)	5 June, 1997 (Day/Month/Year Filed)	☒ Yes	☐ No
09-150600 (Number)	Japan (Country)	9 June, 1997 (Day/Month/Year Filed)	☒ Yes	☐ No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐ Yes	☐ No

I hereby claim the benefit under Title 35, United States Code, 120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to discolse to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international fiiling date of this application:

(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

(Continued on Page 2)

E4011-011

I hereby appoint the following as my attorneys of record with full power of substitution and revocation to prosecute this application and to transact all business in the Patent and Trademark Office:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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